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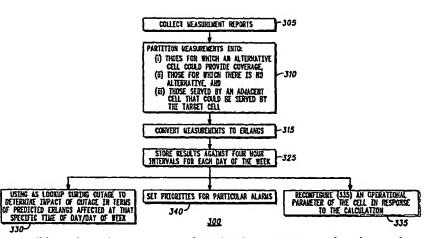
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(54) Title: METHOD FOR DETERMINING A COVERAGE AREA IN A CELLULAR COMMUNICATION SYSTEM



(57) Abstract: A method (300) determines a per-cell coverage area in a cellular communication system that comprises multiple cells. The method comprises measuring (305) one or more parameters relating to one or more operations of a first cell in a cellular communication system. The method includes calculating (320) a degree of coverage overlap from a number of measurements, preferably by comparing a number of first measurements relating to a location that is uniquely served, with a number of second measurements that can be served by a plurality of serving communication units. Tn this manner,

it is possible to determine an amount of overlapping coverage area based on real network measurements rather than inaccurate predicted data that has been t--aditionally employed. Preferably, the measurements afe converted to Erlangs to provide a coverage overlap based on subscriber traffic. A communication system (100) and a communication unit (146) are also provided.

## INTERNATIONAL SEARCH REPORT

Interponal Application No PC1/EP2004/050245

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H04Q7/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

 $\begin{array}{ll} \mbox{MinImum documentation searched (classification system followed by classification symbols)} \\ \mbox{IPC 7} & \mbox{H04Q} & \mbox{H04W} \end{array}$ 

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to dalm No.
A	EP 0 431 956 A (MOTOROLA INC) 12 June 1991 (1991-06-12) column 3, line 8 ~ line 29 column 4, line 56 - column 5, line 11 column 5, line 42 - column 7, line 46	1,10-12
Α ·	GB 2 356 320 A (MOTOROLA LTD) 16 May 2001 (2001-05-16) page 2, line 32 - page 9, line 29; figures 6-8	1,10-12

X Further documents are tisted in the continuation of box C.	X Patent family members are listed in annex.
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Date of the actual completion of the international search	Date of mailing of the international search report
27 October 2004	11/11/2004
Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Tsapelis, A

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Inter ponal Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT					
egory °	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No.		
	ICHITSUBO S ET AL: "MICROCELL AUTOMATIC PROPAGATION MEASURING SYSTEM AND SERVICE-AREA EVALUATION" WIRELESS PERSONAL COMMUNICATIONS, KLUWER ACADEMIC PUBLISHERS, NL, vol. 7, no. 1, 1 May 1998 (1998-05-01), pages 41-49, XP000750751 ISSN: 0929-6212 paragraph 5 - page 49		1,10-12		
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## INTERNATIONAL SEARCH REPORT

information on patent family members

Intermonal Application No	
PCT/EP2004/050245	

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0431956	Α	12-06-1991	US EP US	5023900 A 0431956 A2 5095500 A	11-06-1991 12-06-1991 10-03-1992
GB 2356320	Α	16-05-2001	NONE		